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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,236	06/26/2003	Shun-ichi Ishikawa	Q76184	4220

7590 04/19/2006

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EXAMINER
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HON, SOW FUN

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/606,236	ISHIKAWA, SHUN-ICHI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 11-21 is/are pending in the application.
- 4a) Of the above claim(s) 20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

***Declaration under 37 CFR 1.132***

1. The declaration under 37 CFR 1.132 filed 01/26/06 is insufficient to overcome the rejections of claims 1-9, 11-19 based upon Matsuo in view of Pinnavaia as set forth in the last Office action because: the declaration only used comparative base films of polyethylene terephthalate and a comparative polyester copolymer C, to generate the comparative data. Matsuo, the primary reference recites a polyethylene naphthalate as a material for the base film (substrate film material made of polyethylene naphthalate, column 5, lines 49-56), the same material used in Applicant's base film. The comparative data presented by the declaration is therefore not commensurate with the scope of the prior art.

***Withdrawn Rejections***

2. The obviousness-type double patenting rejection of claims 1-4,9-13, 15-19 over application no. 10/665,432 is withdrawn due to Applicant's amendment and arguments in the remarks section, dated 01/26/06.
3. The 35 U.S.C. 102(b) rejections of claims 1-9 over Volpe/Matsuo are withdrawn due to Applicant's amendment dated 01/26/06.
4. The 35 U.S.C. 103(a) rejection of claims 16-19 over Matsuo, as evidenced by Wiley, and further in view of Stein, is withdrawn due to Applicant's amendment dated 01/26/06.

***Rejections Repeated***

5. The 35 U.S.C. 103(a) rejection of claims 11-15 over Matsuo, as evidenced by Wiley, and further in view of Pinnavaia, is repeated for the same reasons previously of record in the Office action dated 04/14/06.

***New Rejections***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

6. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo (US 5,645,923) in view of Pinnavaia (US 6,414,069), as evidenced by Wiley (Wiley Database of Polymer Properties).

Regarding claims 1-2, 4, 6-9, Matsuo teaches a gas barrier film having an inorganic coating layer (thin film layer, column 3, lines 15-20) and an organic-inorganic hybrid coating layer (composition containing a polymer and at least one hydrolyzate of a metal alkoxide, column 3, lines 15-25). The organic-inorganic hybrid coating layer is formed from a mixture of a hydrolyzed solution (A) of tetraethoxysilane and hydrochloric acid and a water/alcohol solution (E) of polyvinyl pyrrolidone (column 10, lines 55-60), wherein the organic-inorganic hybrid coating layer is formed from a metal alkoxide which is hydrolyzed and polymerized in solution, namely the sol-gel method, as defined by Applicant's specification (page 9, lines 10-20). Matsuo teaches that the inorganic coating layer and the organic-inorganic hybrid coating layer are provided on a base film (substrate film material made of polyethylene naphthalate, column 5, lines 49-56), which is transparent as defined by Applicant's specification (original claim 9). The polyethylene naphthalate material of Matsuo has a glass transition temperature of 100°C or higher, of 120°C or higher, and of 150°C or higher, as evidenced by Wiley.

Wiley teaches that polyethylene naphthalate (Table 3, last line of printout) has a glass transition temperature of 261°C, which is within the range of 100°C or higher, of 120°C or higher, and of 150°C or higher. A chemical composition and its properties are inseparable. If the prior art teaches the identical chemical structure, the properties

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applicant discloses and/or claims are necessarily present. See MPEP 2112.01. Thus the polyethylene naphthalate material of Matsuo is also expected to have a linear thermal expansion coefficient of 40 ppm/°C or lower, or 20 ppm/°C or lower.

Matsuo, as evidenced by Wiley, fails to teach that the base film contains an inorganic layered compound.

However, Pinnavaia teaches a barrier film (column 10, lines 40-45) which contains an inorganic layered compound (column 1, lines 10-20) wherein a polyester is incorporated with the inorganic layered compound (column 15, lines 15-20), and wherein the inorganic layered compound also serves as a polymer reinforcement agent (column 10, lines 43-45) for the purpose of providing the desired reinforcement to the barrier film.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have reinforced the base film of Matsuo as evidenced by Wiley, with an inorganic layered compound, in order to obtain a reinforced base film which provides the desired reinforced base support, as taught by Pinnavaia.

Regarding claims 3, 5, Matsuo fails to teach that the inorganic thin film layer is an inorganic coating layer formed by the sol-gel method.

However, even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art,

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the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113 [R-1].

7. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo in view of Pinnavaia, as evidenced by Wiley, as applied to claims 1-9 above, and further in view of Stein (US 6,322,860).

Matsuo, as evidenced by Wiley, teaches a gas barrier film having an inorganic coating layer and an organic-inorganic hybrid coating layer formed by the sol-gel method on a transparent base film having a glass transition temperature of 100°C or higher, and a linear thermal expansion coefficient of 40 ppm/°C or lower, as described above. Matsuo, as evidenced by Wiley, fails to teach a display with a substrate having the gas barrier film.

However, Stein teaches an electronic display device (abstract) with a plastic substrate on which are applied barrier layers (sheet, column 10, lines 1-10). These barrier layers can be multiple layers comprising sol-gel inorganic coating layers and organic-inorganic hybrid coating layers (column 10, lines 20-30). The display device can be (organic) electroluminescent or liquid crystal (column 1, lines 10-20). Stein teaches that the barrier layers reduce unwanted gas or moisture permeation (column 10, lines 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the gas barrier film of Matsuo in view of Pinnavaia, as evidenced by Wiley, comprising the inorganic and/or organic-inorganic hybrid coating layers formed by the sol-gel method, as the multilayer barrier film of

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Stein, in order to obtain an organic electroluminescent or liquid crystal display substrate protected against unwanted gas and moisture permeation, as taught by Stein.

***Response to Arguments***

8. Applicant's arguments against the valid combination of Matsuo in view of Pinnavaia have been fully considered but they are not persuasive for the reasons set forth below.

9. Applicant argues that Matsuo only discloses gas barrier films having a polyethylene terephthalate base film in the working examples.

Applicant is respectfully apprised that Matsuo also discloses gas barrier films having a polyethylene naphthalate base film (substrate film material made of polyethylene naphthalate, column 5, lines 49-56), the same material used in Applicant's base film.

10. Applicant argues that Matsuo is silent with respect to the use of inorganic layered compounds, and that if Pinnavaia were combined with Matsuo, the excellent gas barrier properties of the present invention cannot be attained by simply using a polyethylene terephthalate base film containing an inorganic layered compound, as demonstrated by Applicant's declaration.

Applicant is respectfully reminded that the primary reference Matsuo discloses polyethylene naphthalate as a material for the base film (substrate film material made of polyethylene naphthalate, column 5, lines 49-56), the same material used in Applicant's base film. Applicant's declaration only used comparative base films of polyethylene



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terephthalate and a comparative polyester copolymer C, to generate the comparative data. Thus the comparative data presented by the declaration is not commensurate with the scope of the prior art. In addition, Applicant is respectfully reminded that the excellent gas properties (e.g oxygen transmission rate and water vapor transmission rate) declared by Applicant, are not recited in the present claims.

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. The scope of claims 1-9, 16-19 has been changed, necessitating the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*S. Hon*  
Sow-Fun Hon  
04/14/06

*Harold Pyon*  
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SUPERVISORY PATENT EXAMINER  
1772

4/17/06